 <p>UNITED NATIONS ESCAP Economic and Social Commission for Asia and the Pacific</p>	<p>Mechanism for cross-border mutual recognition of trade-related data and documents in electronic form</p> <p>Version and Date: Version 0.3 as of 5 March 2019</p>
<p>Legal and Technical Working Groups of the Interim Intergovernmental Steering Group on Cross-border Paperless Trade Facilitation</p>	

The Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific (FA-PT) intends to “*promote cross-border paperless trade by enabling the exchange and **mutual recognition of trade-related data and documents in electronic form** and facilitating interoperability among national and subregional single windows and/or other paperless trade systems, for the purpose of making international trade transactions more efficient and transparent while improving regulatory compliance*” (Art 1). The FA-PT includes a dedicated provision on *Cross-border mutual recognition of trade-related data and documents in electronic form* (Art.8), indicating that mutual recognition is to be provided on the basis of a substantially equivalent level of reliability; with substantially equivalent level of reliability to be mutually agreed upon among the Parties after entry into force of the treaty.

The Legal and Technical Working Groups (LTWGs), together with United Nations Network of Experts for Paperless Trade and Transport in Asia and the Pacific (UNNExT) experts, have started developing a background note on mutual recognition mechanism for trade-related data and documents in electronic form. Through several virtual meetings of the Technical Working Group and the Meeting of the Extended UNNExT Advisory Group on Cross-border Paperless Trade Facilitation held on 30 October - 1 November 2018 in Bangkok, participating members of the LTWGs and UNNExT experts managed to identify issues to be covered in the background note and added relevant details for certain issues. The identified issues include concept of mutual recognition in the context of electronic data exchange and FA-PT, relevant terms and definitions, analysis of existing cross-border mutual recognition approaches to draw lessons, required components for cross-border mutual recognition, possible models and mechanisms of cross-border mutual recognition under the FA-PT, etc.

The current version of the background note is attached in annex, for further development as the basis towards establishment of a mutual recognition mechanism.¹

¹ The document is work in progress and did not go through any formal editing.

Annex: Background note on mutual recognition mechanism for trade-related data and documents in electronic form

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PART 1. INTRODUCTION

1.1 Background

The information and communication technology has become a valuable tool and environment for obtaining electronic services for individuals and entities of different states. The advantages of such services are evident, but some organizational and legal issues prevent their wide usage in those activity areas where users need a certain degree of confidence each other and in electronic services they use. One of the main issues is ensuring the legal validity of e-documents and legal significance of electronic interaction in general. This problem is critical at both national level (within the single jurisdiction) and transboundary level (interaction of participants acting under jurisdictions of different states).

Cross-border paperless trade requires a certain degree of trust. Some countries have national infrastructures to provide trusted paperless interaction in different spheres: tendering, customs declaration, single window, to name a few. All these infrastructures are usually based on national legislation and may apply different technologies. Consequently, economic operators face obstacles when they engage in paperless trade across borders.

The current document intends to provide an overview of existing practices in arranging a mechanism for cross-border mutual recognition, mutual recognition of electronic communication and help readers better understand factors that contribute to the establishment of cross-border mutual recognition of electronic communication mechanism

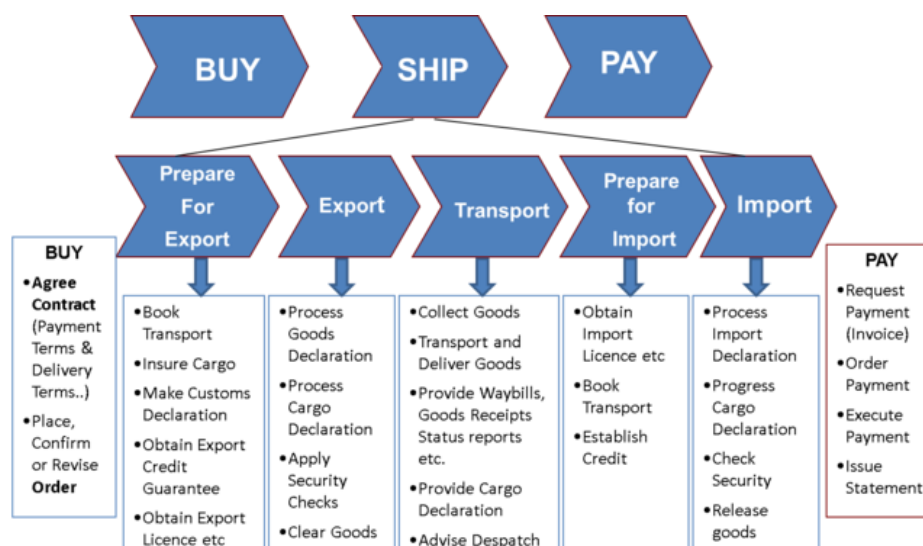
1.1.1. What is mutual recognition and why it is needed

Paper documents provide a primary basis and medium for sharing information related to trade activities. Such practice of exchanging information using paper documents has been developed over a long period. Relevant stakeholders of trade activities, both public and private sectors, have developed institutional systems and ways to ensure legal admissibility and public recognition of information contained in paper documents. For example, notarization is practiced for the legalization of paper documents being exchanged. Courts and insurance companies accept paper documents as evidence based on such legalization to ensure the protection of rights and legitimate interests of citizens and organizations, in case there is a conflict among stakeholders (parties).

In the past, mailing or using a courier service has been the only way to exchange paper documents among stakeholders for a long period. In the 1960s, with the introduction of the fax machine, the international trade community started using this new vehicle, and it quickly became a dominant tool for business communication³. However, fax had remained only as a transmitter of information with no possibility of processing information contained in paper documents. Therefore, when Electronic Data Interchange (EDI) emerged and brought an effective support for electronic document exchange, deployment of EDI quickly expanded to many different sectors and industries. Currently, there are several international, national and industry standards defining the format of EDI documents.

The Buy-Ship-Pay model developed by UN/CEFACT provides a high-level overview of main processes and parties involved in the international supply chain⁴. In Figure 1, “Ship” comprises one of three top-level processes, together with “Buy” and “Pay”; Below the top-level “Ship” process, five business processes at transaction-level are illustrated.

Figure 1. Buy-ship-pay model



Source: <http://tfig.unece.org/contents/buy-ship-pay-model.htm>

³ Draft Reference Map for the implementation of the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific (<http://www.unescap.org/resources/reference-map-cross-border-paperless-trade-processes>)

⁴ "ISCM Reference Model-2001" available at <http://tfig.unece.org/contents/buy-ship-pay-model.htm>

Each business process in international trade involves the exchange of relevant information in the form of trade-related documents among different stakeholders. Trade-related documents and data created in one jurisdiction are exchanged across borders and should be utilized in other jurisdictions. The same should apply to such documents and data in electronic form; trade-related documents and data in electronic form should be exchanged and utilized across borders among relevant stakeholders to serve its intended purpose, despite its electronic format.

However, it is not guaranteed that legal validity of trade-related documents and data in the electronic form created in one jurisdiction would remain valid in another jurisdiction when they are exchanged across different jurisdictions. To make the exchange of trade-related documents and data in electronic form valid, different jurisdictions should provide reciprocal recognition of the validity of such data and documents whenever they are exchanged across borders.

1.1.2. What are issues in the context of electronic data and documents:

In a cross-border paperless trade environment, parties are usually in different jurisdictions. Cross-border paperless trade is challenged because most domestic laws allowing electronic communication are established based on local procedures and national technical standards to achieve authentication and non-repudiation. This is particularly the case for cross-border trade, where the exchange of goods or services could involve document and data exchange between multiple networks which may be hosted on the cloud and multiple different jurisdictions.

To give the same effect as physical transactions to cross-jurisdictional electronic transactions, a mutual recognition framework is needed, which can allow parties in different jurisdictions to exchange and recognize valid documents. A mutual recognition framework may take into account certain aspects, such as identity, authentication, authorization, and others.

A mutual recognition framework may allow parties to the contract to decide what constitutes a valid transaction. Governments may also specify guidelines or rules defining a procedure to be followed in validating and accepting a transaction from another jurisdiction, which may be drawn from treaties, agreements between governments.

1.1.3 Mutual Recognition in the context of the Framework Agreement

The Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific (FA-PT), adopted by ESCAP member states in 2016, intends to “promote cross-border paperless trade by enabling the exchange and mutual recognition of trade-related data and documents in electronic form and facilitating interoperability among national and subregional single windows and/or other paperless trade systems, for the purpose of making international trade transactions more efficient and transparent while improving regulatory compliance.”⁵

To enable mutual recognition of trade-related data and documents in electronic form among the parties to it, the FA-PT has a dedicated provision on mutual recognition in its Article 8. The Article begins by specifying the requirement of parties to provide mutual recognition, followed by elaboration on requirements and conditions for meeting in providing mutual recognition. The requirements and conditions are summarized as follows:

- Mutual recognition is provided by a substantially equivalent level of reliability; the substantially equivalent level of reliability would be mutually agreed upon among the Parties through the institutional arrangement.
- It is possible for parties to enter into additional bilateral and multilateral arrangements to operationalize cross-border mutual recognition, on the condition that 1) [they are] consistent with the principle of the transboundary trust environment and all the other general principles and 2) provisions of these bilateral and multilateral arrangements do not contradict the FA-PT.

1.2. Definition

1.2.1. Mutual recognition

Mutual recognition is “reciprocal recognition of the validity of trade-related data and documents in electronic form exchanged across borders between two or more countries.”⁶ The primary need of mutual recognition is the creation of the opportunity to exchange trade-related

⁵ https://treaties.un.org/doc/Treaties/2016/05/20160519%2012-16%20PM/Ch_X-20.pdf

⁶ Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific, Article 3(g)

data and documents in electronic form across borders between different countries with different technological approaches and under different jurisdictions. Mutual recognition based on common principles will provide a smooth, transparent and reliable environment for trade-related data and documents in electronic form exchanged across borders. Implementation of mutual recognition mechanism concept will help to facilitate interaction and to ensure trust between parties taking part in cross-border paperless trade exchange. This implementation will also benefit the Parties with improved regulatory compliance through better risk assessment and integrity of data and documents. Different linguistic, cultural, legal, and administrative environments in countries may pose significant challenges in achieving mutual recognition and creating trust in cross-border exchange of trade-related data and documents in electronic form among countries.

1.2.2 Mutual Recognition scheme

To achieve mutual recognition, a mechanism to ensure the integrity, non-repudiation, authentication, confidentiality and legal validity of electronic trade-related data and documents should be designed and implemented. This scheme consists of governance including institutional arrangement and role and responsibility of stakeholders, a methodology for securing trust including assessment and technical and legal framework for interoperability and legal validity.

1.2.3 Cross-border mutual recognition arrangement/agreement

The objective of the Mutual Recognition Arrangement (MRA) is to ensure a mutually, regionally and globally recognized framework. The arrangement might include such information as roles and responsibility of stakeholders, recognition mechanism, inspection bodies, which can be relied on to provide competent services, such as certification activities, testing, calibration, and inspection. In international trade, the MRAs promote cross-border stakeholder confidence, regulatory compliance and the acceptance of accredited conformity assessment bodies.

1.2.4. Mutual acceptance of electronic data and documents

Mutual acceptance of electronic data and documents means that electronic data and documents generated in any member country in accordance with standard guidelines and principles agreed upon by participating member countries shall be accepted in other member countries. Mutual acceptance is a low-level recognition of electronic data and documents scheme.

1.2.5. Accreditation for cross-border recognition

Accreditation is the independent evaluation of intermediary bodies against recognized standards and requirements to ensure their impartiality and competence. Through the application of mutually agreed standards, related governments and other stakeholders can have confidence in the electronic transactions provided with confidentiality, authentication, integrity, and non-repudiation.

1.2.6. Stakeholders

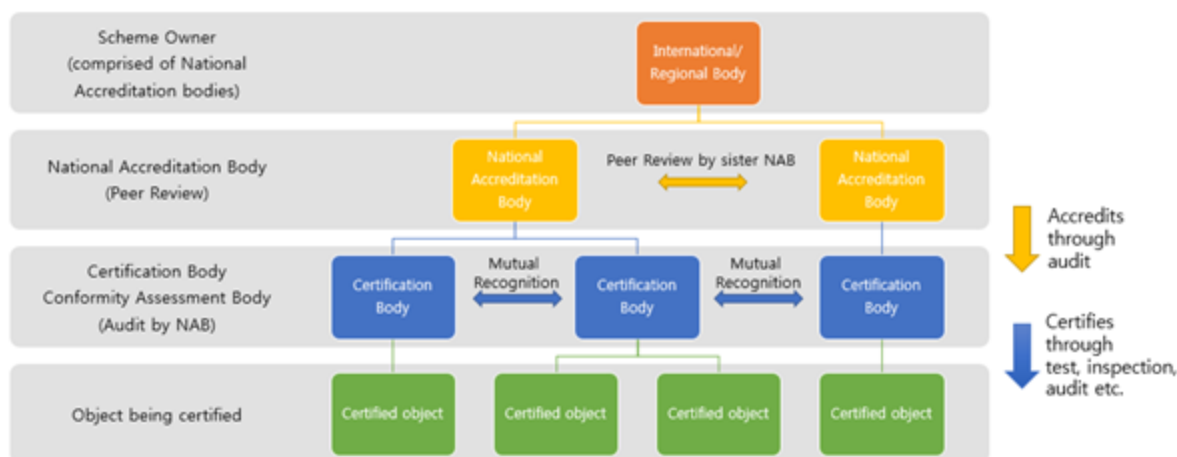
Stakeholders of mutual recognition are traders, trade service providers, public authorities related to trade and other intermediaries which may play as an accredited body for MRA, interacting in the framework of relations arising during generation, sending, transmission, reception, storage and use of trade-related data and documents in electronic form exchanged across borders.

2. LESSONS FROM EXISTING CROSS-BORDER MUTUAL RECOGNITION APPROACHES IN AREAS OTHER THAN ELECTRONIC DATA/DOCUMENTS

MRA was introduced as a tool for trade facilitate the trade, increasing the market accessibility, and eliminating or reducing the Non-Tariff Barrier (NTB) and often misinterpreted that it may require to unify Standards or Technical Regulations. Then what is MRA and how does MRA works? The designated agency of the exporting country accredits or appoints the conformity assessment institute (testing agency or certification agency) that can conduct the conformity assessment pursuant to the importing country's technical regulations. Now, it may appoint the accreditation agency that conducts the conformity assessment agency's accreditation matters on behalf of the designated agency. Also, when it gives the importing country the list of designated accreditation agencies and the designated or accredited conformity assessment agencies, the importing country decides on the approval after assessment.

The most important thing in establishing and maintaining the mutual recognition scheme is how to manage the trust in the mutual recognition arrangement. The best known worldwide mutual recognition scheme is Multilateral Recognition Arrangement (MLA) of the International Accreditation Forum (IAF). The IAF is the world association of conformity assessment Accreditation Bodies. Its primary function is to develop a single worldwide program of conformity assessment which reduces risk for business and its customers by assuring them that accredited certificates may be relied upon[1]. The IAF ensures that Accredited Bodies follow the framework of accreditation and its rules to maintain the consistent level of deliverables. Basic scheme in maintaining the minimum level of credibility is to use peer evaluation to ISO/IEC 17011: 2004 (General Requirements for Accreditation Bodies Accrediting Conformity Assessment Bodies) on Accreditation Bodies and ISO/IEC Guide 65 or ISO 17021-1 2015 (Conformity assessment -- Requirements for bodies providing audit and certification of management systems) on Certification Bodies which are accredited by Accreditation Bodies. Below figure illustrate how the multilateral recognition scheme works in conformity assessment across the borders.

Figure 2. General Multilateral Recognition Arrangement of Conformity Assessment



Source: Certification and Accreditation Framework, Global Food Safety Initiative

2.1. MRA of AEO (Authorized Economic Operator⁷)

AEO Mutual Recognition agreement (MRA) refers to the signing of a formal document between two or more Customs administrations outlining the circumstances and conditions in which AEO's are recognized and accepted between the signing parties. The MRA sets out the process to implement, evaluate, monitor and maintain mutual recognition. Also, the MRA defines the benefits mutually provided by the participating Customs administrations and lays down the practical arrangements enabling the participating Customs administrations to provide those benefits⁸.

The objective of Mutual Recognition of AEOs is that one Customs administration recognizes the validation findings and AEO authorizations by the other Customs administration issued under the other programme and agrees to provide substantial, comparable and – where possible – reciprocal benefits/facilitation to the mutually recognized AEOs.⁹ This recognition is

⁷ “Each Contracting Party shall grant the status of «authorized economic operator» to the economic operator established in its customs territory. An authorized economic operator shall benefit from facilitations with regard to security related customs controls.” (Source: Guidelines for developing a mutual recognition arrangement/agreement, WCO Safe package, 2011)

⁸ Guidelines for developing a mutual recognition arrangement/agreement, WCO Safe package, 2011, 1

⁹ Guidelines for developing a mutual recognition arrangement/agreement, WCO Safe package, 2011, 1-3

generally premised on the existence (or creation) of both relevant legislation (where applicable) and operational compatibility of both or more programmes.

An MRA refers to the signing of a formal document between two or more Customs administrations outlining the circumstances and conditions in which AEO programmes are recognized and accepted between the signing parties. The MRA sets out the process to implement, evaluate, monitor and maintain mutual recognition. In addition, the MRA defines the benefits mutually provided to the AEOs by the participating Customs administrations and lays down the practical arrangements enabling the participating Customs administrations to provide those benefits. The MRA should, to the extent possible, be published as a matter of public record.

Mutual recognition of AEO Programmes may ultimately lead to the globalization of supply chain security and compliance standards and is therefore of great importance for those companies seeking true global supply chain security and compliance benefits. Companies participating in mutual recognition of AEO Programmes will have confidence that their standing in such programmes will be made available, if they choose this, to other Customs administrations with which an MRA has been signed. Additionally, Customs administrations will be able to factor this information into their own risk determinations which may lead to more focused validations and other compliance benefits.

Challenges in AEO MRA¹⁰ are:

- Lack of standard process for negotiating MRAs - no standardized templates for scope, format, or provisions/clauses that should be included.
- The focus (e.g. security and/or compliance issues), level of development and implementation of AEO programmes around the world are often different, including the ways in which these programmes are managed and organized. However, at Regional, Sub Regional, Multilateral or Bilateral level in this region, it may be easier to achieve because of similarity in procedures
- Priorities and level of support of each Customs administration to engage in MRA negotiations vary. Both sides must be fully committed to the level of time and resources necessary to see the endeavor through.

¹⁰ Guidelines for developing a mutual recognition arrangement/agreement, WCO Safe package, 2011, 1-3

- Each programme has its own terminology.
- Limitations on information sharing due to partner countries' different laws and regulations. Consent to share information is not always provided by companies in each programme.
- Differing benefits extended through the AEO Programmes in each country can make it difficult to establish reciprocity.
- There is no global trader identification number (e.g. TIN) for companies to be identified by the MRA partner to ensure that benefits are delivered to the AEOs.
- Many countries use incompatible technologies (e.g. differences in capabilities in Customs IT systems).
- The costs and investments required to develop new technologies are extensive.
- Storing each other's AEO details in databases needs to be reconciled with data protection and data security concerns.
- Adapting Customs declaration systems to capture and validate the parties in the supply chain that could be an AEO.
- Adapting risk management engines to take the status of AEO favorably into account in risk management.
- There are different ways of identifying AEO companies from MRA partners.
- AEO Programmes of partner countries sometimes target different parties in the supply chain (e.g. some do not cover the importer; others do not cover the exporter).
- The absence of any technique or mechanism to deal with the supply chain as a whole. Even with MRAs in place, logistical entities involved in the supply chain are excluded and only importers and exporters are concerned.
- Differentiated benefits established in different programmes.

2.2. APEC TEL MRA¹¹

In June 1998, the APEC Telecommunications and Information Ministers agreed to streamline APEC-wide processes for the testing and type-approval of telecommunications

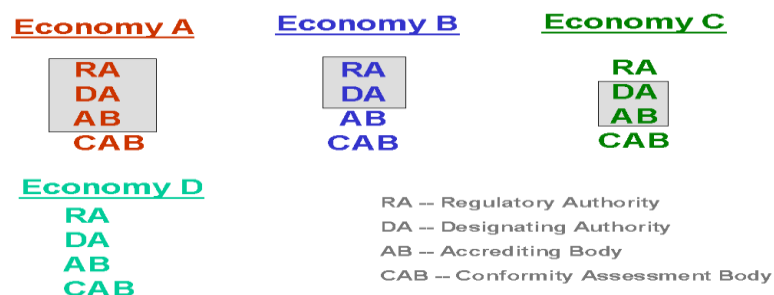
¹¹ Source: https://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Telecommunications-and-Information/APEC_TEL-MRA.aspx

equipment. This landmark arrangement, the Mutual Recognition Arrangement for Conformity Assessment of Telecommunications Equipment (APEC TEL MRA), was the first multilateral agreement of its type in the world. It will remove a significant barrier to what is projected to be a US\$60 billion industry by 2010. Its scope includes all equipment subject to telecommunication regulations, including wireline and wireless, terrestrial and satellite equipment. For such equipment, the MRA covers electromagnetic compatibility (EMC) and electrical safety aspects as well as purely telecommunications aspects of the conformity assessment requirements.

This arrangement is intended to streamline the Conformity Assessment Procedures for a wide range of telecommunications and telecommunications-related equipment and thereby to facilitate trade among the Parties. It provides for the mutual recognition by the importing Parties of Conformity Assessment Bodies and mutual acceptance of the results of testing and equipment certification procedures undertaken by those bodies in assessing conformity of equipment to the importing Parties' own Technical Regulations.

APEC TEL MRA is open not only to its member economies to enter the arrangement, but also to the regional institutions such as ASEAN, and even to some national institutions such as United States NIST and FCC. To operationalize the APEC TEL MRA the main responsible APEC fora - APEC Telecommunications Working Group - has created a designated Conformance Assessment and Mutual Recognition Arrangement Task Force under its Liberalization Steering Group subgroup.

.Figure 3. Relationships among entities under an MRA



The MRA does not undermine regulatory authority within member Economies. To implement the MRA, certain procedures will need to be followed. These apply to distinct bodies identified in the MRA such as:

- Party: an APEC member economy that agrees to participate in this Arrangement.
- Joint Committee: a committee of the APEC Telecommunications Mutual Recognition Arrangement Taskforce established for the purpose of managing the implementation of the MRA.
- Regulatory Authority: a government entity responsible for telecommunications requirements within an Economy
- Designating Authority: a Government authority appointed by a Party for the purpose of designating a Conformity Assessment Body to perform Conformity Assessment Procedures under this Arrangement.
- Accreditation Body: a body that is responsible for assessing and recognizing the specific competencies of testing laboratories and/or certification bodies in accordance with international standards.
- Conformity Assessment Body: a body, which may include a third party or a supplier's testing laboratory, or a certification body, that is designated to perform conformity assessment to an importing Party's Technical Regulations under this Arrangement.

Certain functions such as Designation, accreditation, and recognition are defined in the text of the MRA. They are typically carried out by one or more organizations within an Economy. Figure 2 shows the possible relationships between various entities that may have a role in MRA implementation within an Economy. It is the Party to the Arrangement that has final responsibility for the implementation and the key role in supervising or delegating tasks to other groups.

Table 1. APEC TEL MRA participating member economies

	Australia	Canada	Chile	Chinese Taipei	Hong Kong	Japan	New Zealand	ROK	Singapore	USA	Viet Nam
Australia		○ (99.7)		○ (99.7)	○ (99.7)				○ (99.7)	○ (02.6)	
Canada	○ (99.7)			○ (99.7)	○ (02.3)			○ (97.1)	○ (99.7)	◎ (01.3)	
Chile								○ (08.6)			

Chinese Taipei	○ (99.7)	○ (99.7)			○ (99.7)				○ (99.7)	○ (99.3)	
Hong Kong	○ (99.7)	○ (02.3)		○ (99.7)					○ (99.7)	◎ (05.4)	
Japan									◎ (02.1)	◎ (07.2)	
New Zealand											
ROK		○ (97.1)	○ (08.6)								○ (06.1)
Singapore	○ (99.7)	○ (99.7)		○ (99.7)	○ (99.7)	◎ (02.1)				◎ (03.10)	
USA	○ (02.6)	◎ (01.3)		○ (99.3)	◎ (05.4)	◎ (07.2)			◎ (03.10)		
Viet Nam								○ (06.1)			

2.3. EU MRAs¹²

○ MRAs with third-countries

Most part of the EU internal market for industrial products is governed by mutual recognition, however, the EU does not have internal MRAs. The European Union (EU) has signed mutual recognition agreements (MRAs) with third-country authorities concerning the conformity assessment of regulated products. Such agreements contain a sectoral annex on the mutual recognition of good manufacturing practice (GMP) inspections and batch certification of human and veterinary medicines.

EU has different forms of MRAs: traditional MRAs with countries having different rules and/or conformity assessment procedures, or «enhanced MRAs», based on commitments to align

¹² Source:

http://www.ema.europa.eu/ema/index.jsp?curl=pages/regulation/general/general_content_001843.jsp

the relevant rules with those of the EU. MRAs allow EU authorities and their counterparts to: rely on each other's GMP inspection system; share information on inspections and quality defects and waive batch testing of products on import into their territories. Each agreement has a different scope.

MRAs benefit regulatory authorities by reducing duplication of inspections on each other territory, allowing for greater focus on sites that could have a higher risk and broadening the inspection coverage of the global supply chain. The European Commission is responsible to negotiate MRAs with partner countries on behalf of the EU. The European Commission may consult EMA on regulatory and scientific questions as part of this process.

- *Mutual recognition of e-documents*

Mutual recognition of electronic documents is governed by the Regulation (EU) no 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC electronic documents mutual recognition. The Regulation is aimed to enhance trust in electronic transactions in the internal market by providing a common foundation for secure electronic interaction between citizens, businesses and public authorities, thereby increasing the effectiveness of public and private online services, electronic business and electronic commerce in the Union.

According to the regulation, Member States should designate a supervisory body or supervisory bodies under mutual recognition agreements with another Member States. Supervisory bodies cooperate with data protection authorities, for example, by informing them about the results of audits of qualified trust service providers, where personal data protection rules appear to have been breached. All Member States follow common essential supervision requirements to ensure a comparable security level of qualified trust services. All trust service providers are subject to the requirements of the Regulation. Regulation is applied in accordance with national rules on liability. Therefore, national rules on, for example, definition of damages, intention, negligence, or relevant applicable procedural rules are not affected.

2.4. ILAC MRAs¹³

Historically, ILAC first started as a conference. It was held with the aim of developing international cooperation for facilitating trade by promotion of the acceptance of accredited test and calibration results. In 1996, ILAC became a formal cooperation with a charter to establish a network of mutual recognition agreements among accreditation bodies.

In 2000, the 36 ILAC's Full Members consisting of laboratory accreditation bodies from 28 economies worldwide, signed the ILAC Mutual Recognition Arrangement (ILAC MRA) in Washington DC, to promote the acceptance of technical test and calibration data for exported goods. The ILAC MRA for calibration and testing laboratories came into effect on 31 January 2001. The ILAC MRA was then extended in October 2012 to include the accreditation of inspection bodies. Nowadays, ILAC is the international organization for accreditation bodies operating in accordance with ISO/IEC 17011 and involved in the accreditation of conformity assessment bodies (CAB) including calibration laboratories (using ISO/IEC 17025), testing laboratories (using ISO/IEC 17025), medical testing laboratories (using ISO 15189) and inspection bodies (using ISO/IEC 17020).

Accreditation bodies are established in many economies with the primary purpose of ensuring that conformity assessment bodies are subject to oversight by an authoritative body. Accreditation bodies, that have been peer evaluated as competent, sign regional and international arrangements to demonstrate their competence. These accreditation bodies then assess and accredit conformity assessment bodies to the relevant standards.

2.5. PAA PKI Mutual Recognition Framework

PAA is an alliance of paperless trade service providers in Asia. PAA comprises of 11 members from the Republic of Korea, China, Japan, Hong Kong, Taiwan (Chinese province), Macau, Thailand, Philippines, Singapore, Indonesia, and Malaysia. PAA aims to provide seamless cross-border transaction services through robust legal and technical cross-border electronic message exchange framework. For this purpose, PAA has established a PKI Mutual Recognition Framework to establish a comparative level of trustworthiness. Authentication of

¹³ Source: <http://ilac.org/ilac-mra-and-signatories/>

the identity of individuals or organizations is required so as to establishing non-repudiation for cross-border exchange of electronic messages.

- Terms

A public key infrastructure (PKI) is a set of roles, policies, and procedures needed to create, manage, distribute, use, store, and revoke digital certificates and manage public-key encryption. The purpose of a PKI is to facilitate the secure electronic transfer of information for a range of network activities such as e-commerce, internet banking, and confidential email. It is required for activities where simple passwords are an inadequate authentication method and the more rigorous proof is required to confirm the identity of the parties involved in the communication and to validate the information being transferred (Wikipedia). In cryptography, a Certificate Authority or Certification Authority (CA) is an entity that issues digital certificates(Wikipedia). Certification Practice Statement (CPS) is a statement of the practices that a CA employs in managing digital certificates that it issues.

- Stakeholders

PAA PKI Mutual Recognition Framework has four stakeholder groups. PAA Certificate Policy Authority (CPA) under PAA, (Accredited or applying) Certificate Authority(ies), PAA members and users (trading companies or trade-related service providers).

- Inputs and Tools

There are tools that define the relations among, role and responsibility of stakeholders in this recognition framework. These inputs and tools are PAA Club Agreement, CPA Terms Of Reference, PAA Certificate Policy, CA Recognition Agreement, CA (and CPS) Recognition Procedure, PAA Interconnection Agreement (with Service Level Agreement) and PAA Subscriber Agreement. PAA Club Agreement is a rulebook that governs the whole recognition and cross-border transaction service framework defining the roles, responsibilities, relations and definitions of stakeholders and tools for the framework. By signing the subscriber agreements, users are agreeing to terms and conditions of the PAA Club Agreement, PAA PKI Mutual Recognition Framework and cross-border transaction service scheme.

Certificate Policy (CP) prepared by the PAA Certificate Policy Authority contains the set of rules that govern the issuance and use of digital certificates, and indicate the applicability of the certificates to the communities within PAA. It specifies the Audit procedure, Revocation, Records archival and Certificate & CRL (Certificate Revocation List) Profiles, and others. PAA CP is the basis of the Mutual Recognition of Public Key Infrastructure that forms a part of conditions for periodical assessment of (accredited) CA, and each CA will need to ensure that their CPS complies with this Certificate Policy.

CA Recognition Agreement is an agreement between PAA Certificate Policy Authority and each Certificate Authority contracted by PAA Service Provider in each economy. Under CA Recognition Agreement, Certificate Policy Authority recognizes that the applicant CA is a conforming or accredited CA of PAA. CA and CPS (Certification Practice Statement) Recognition Procedure defines the procedure to be used by the PAA Certificate Policy Authority to give recognition to the individual Certification Practice Statement (CPS) and Certificate.

- How does PAA PKI Mutual Recognize Framework work

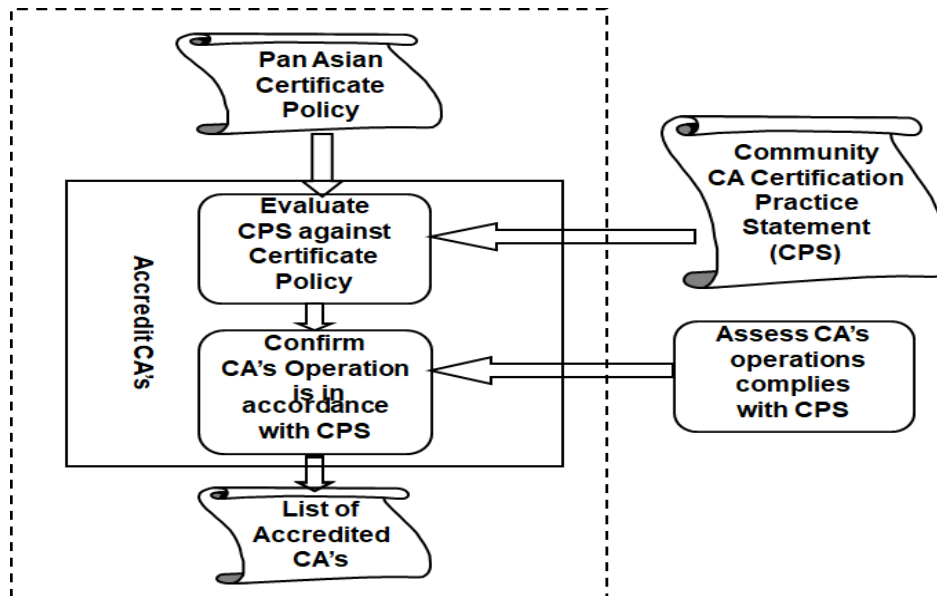
PAA CPA was established in 2001. The main purpose of PAA CPA is to set criteria for PAA CA and CPS recognition. Terms Of Reference of CPA defines a common PAA Certificate Policy (CP), a procedure for the recognition of CPS of CA against this CP, a procedure for the change management for the CP and the recognition procedure and it also administers the recognition and changes management procedure. PAA CP defines a set of rules as minimum and common criteria for recognition for use within the PAA domain and trusted by the PAA members. CPS of a CA seeking recognition by PAA is assessed against this PAA CP. PAA CP sits on top of a CPS that cover different aspects (policy, legal, operational, technical).

Recognition procedures of PAA CP cover initial recognition and renewal and revocation of recognition. The initial recognition follows the below procedure:

- ✓ Applying CA submits supporting documents (e.g. sponsor letter from PAA member being the user/relying party of the certificate, CPS, external assessment report, test report, etc) to the Certificate Policy Authority
- ✓ PA's PKI experts review the submitted documents against CP and other requirements

- ✓ PA's PKI experts produce recommendation report by the experts
- ✓ If accepted, the PA will sign recognition agreement with the CA, publish the CA's information to the Authority's official website and add the CA to the Certificate Trust List (CTL) to be distributed to PAA members

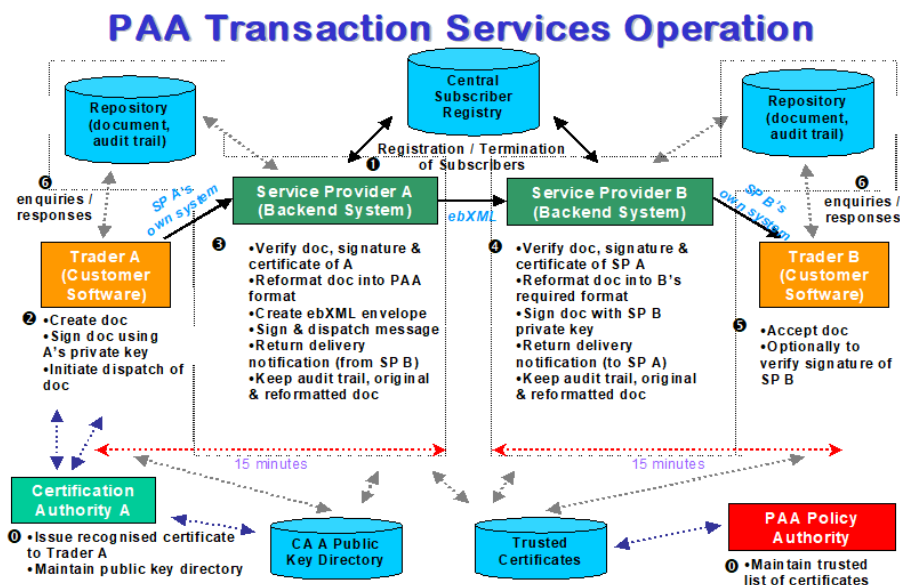
Figure 4. PAA PKI Mutual Recognize Framework work



- PAA PKI Mutual Recognize Framework is applied to actual recognition of cross-border exchange of electronic messages as follows:
 - ✓ Trading company A signs the User Subscription Agreement with PAA service provider A in trading company's domain economy. Trading company B will proceed in the same way. Service provider A and B exchange registered information of trading company A and B.
 - ✓ Trading company A creates an electronic message (the electronic message can be created by in-house system or service provider A's web system), sign it with a private key of trading company A (optional depending on the arrangement between trading company A and Service Provider A) and dispatches the electronic message to service provider A.
 - ✓ Service provider A verifies the received electronic message and reformats it into PAA standard format.

- ✓ Service provider A creates ebXML (UN CEFAC e-commerce messaging standard) envelope, signs the PAA standard format message, identify the receiving party and dispatches it to receiving service provider B.
- ✓ Service provider B verifies the received message, signature and certificate of service provider A. Service provider B reformats the message into a national or proprietary standard of trading company B and signs the message with an electronic certificate of service provider B based on the arrangement with trading company B and dispatches the message to the trading company.
- ✓ Service provider B returns delivery notification to service provider A. And Service provider returns delivery notification to trading company A.
- ✓ Trading company B receives the message either to an in-house system or web application of service provider B. If message acceptance notification is required, trading company B create and dispatch acceptance notification back to trading company A through service provider B and A.

Figure 5. PAA Transaction service operation model



- Challenges and lessons from the PAA Mutual Recognition scheme set-up experience

- ✓ (Challenges) PAA transactions and electronic messages delivered are not recognized by most receiving economy's authorities. And even if it is being recognized, the acceptance is limited to a specific authority.
- ✓ (Challenges) Not every member economies of PAA has a legal framework for certified CA and use of electronic certificates (there is no digital signature law or electronic transaction (or document) law)
- ✓ (Challenges) There is a technical capacity gap among PAA members
- ✓ (Lessons) Governance structure and recognition policy are the most important aspects of mutual recognition scheme
- ✓ (Lessons) To establish a comparative level of trustworthiness and keep it sustainable, it is necessary to have a periodical compliance audit procedure against requirements
- ✓ (Lessons) Authentication of the identity of individuals or organizations so as to establishing non-repudiation for cross-border trade and adherence to "good practice" while being flexible to allow for local requirements or variations are important

2.6. EEU PKI MRA

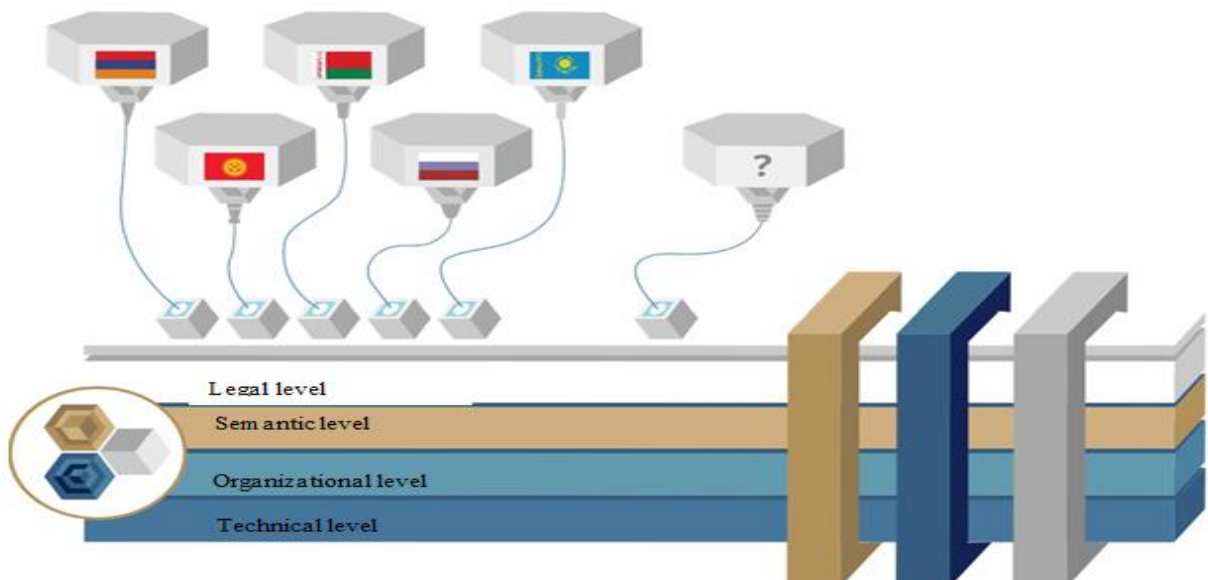
EEC mutual recognition of documents in electronic form exchanged across borders is described in the Provision on exchange of electronic documents at cross-border interaction of Public authorities of Eurasian Economic Union member states among themselves and with the Eurasian economic commission from 28 September, 2015 № 125 and is applied in the terms determined by the Protocol on information and communication technologies and information exchange within the Eurasian Economic Union. The Relations arising in connection with an exchange of electronic documents are regulated by the Agreement of the Eurasian Economic Union from May 29, 2014. The Technological documents regulating information exchange are developed according to the Decision of Board of the Eurasian economic commission from November 6, 2014 No. 200. The electronic documents that are prepared according to the Provision are equivalent to the paper documents certified by the signature or the sign and seal. Participants of electronic documents exchange of EEC model are:

- Commission;
- Authorized bodies or accredited by them organizations;

- Trusted third parties of member states and Commission;
- Certification authorities of member states and the Commission, Certification Authority of trusted third party of the integrated system.

EEC Commission identifies general principles for mutual recognition of data and documents in electronic form exchanged across borders between member countries.

Figure 6. Levels of interoperability of trade-related data in EEC



Source: Interoperability of information systems at forming and development of cross-border e-infrastructures and platforms

Features of national mechanisms for EEC cross-border paperless trade include:

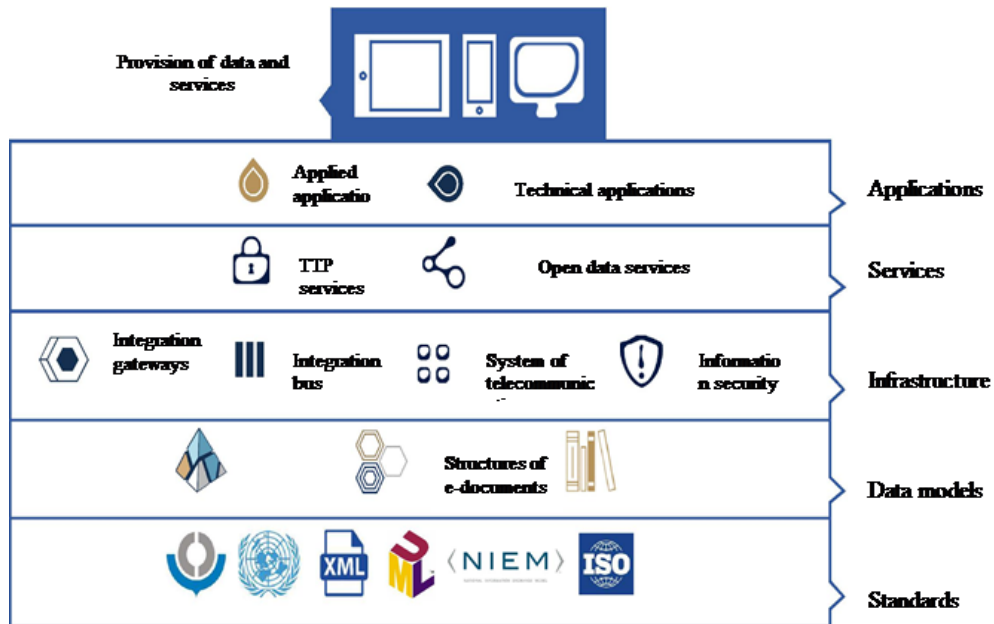
- Interdepartmental interaction;
- Interstate cooperation between the Union countries;
- Interstate cooperation with other countries and the international organizations.

EEC Mutual recognition and interoperability principles are:

- Use of International standards;
- Openness and transparency;
- Exchange of data, but not documents ;
- Model focused approach;
- Reuse;

- Technological and technical neutrality;
- Multiple languages;
- Saving information and transition of data;
- Safety and confidentiality.

Figure 7. Instruments for ensuring mutual recognition and interoperability of the paperless trade systems in EEC

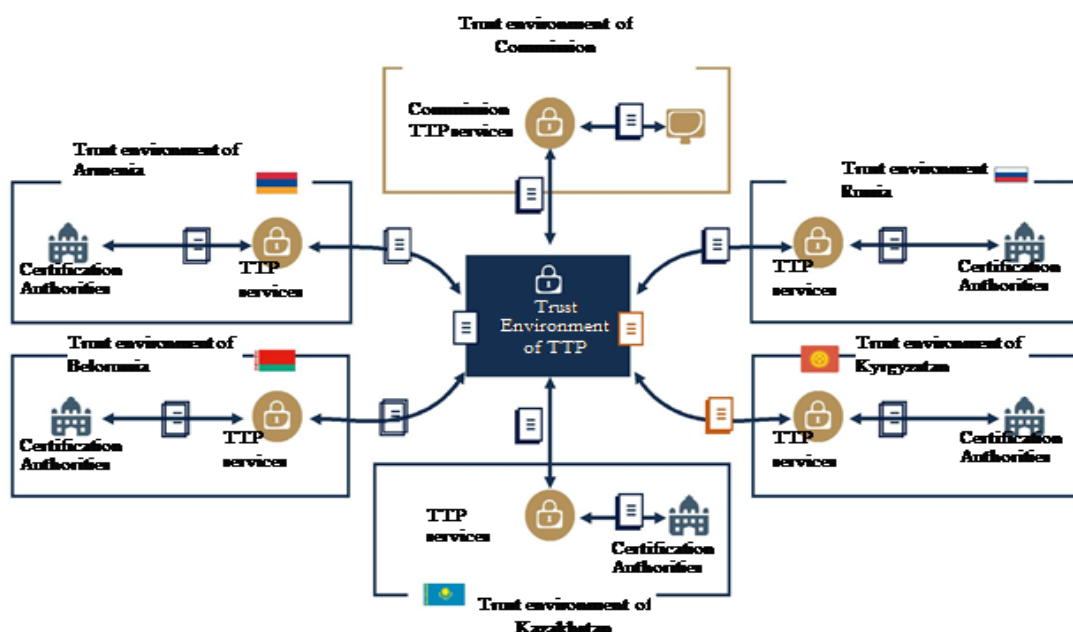


Standards used:

- ISO 639-1:2002
- ISO/IEC 9834-8:2008
- ISO/IEC 11179-4:2004
- ISO/IEC 11179-5:2015
- ISO 15000-5:2014

At the first stage (until 2020) mutual recognition of electronic data will be provided mainly within G2G TTE model and then, in the frame of mutual development of TTE by member countries, the main principles of G2B and G2C interaction will be further developed and implemented.

Figure 8. Transboundary trust environment of EEC



Source: Interoperability of information systems at forming and development of cross-border e-infrastructures and platforms¹⁴

Analyses of the aims of EU MRA and EAEU MRA for recognition of electronic documents show that both MRAs have a lot of commonalities. They are both oriented on the establishment of the digital single market by fostering cross-border and cross-sectoral interoperability.

Table 2. Comparison of aims of EU MRA and EAEU MRA

MRA EEC		MRA EU
The purpose of the TTE is to	Aims commonalities	The purpose of the EIF is to:

¹⁴ <http://system.eaeunion.org/>

Formation of favorable and trusting conditions for the implementation of interstate information interaction, providing for the use of electronic documents by the subjects of electronic interaction with legal force;		Inspire European public administrations in their efforts to design and deliver seamless European public services to other public administrations, citizens and businesses which are to the degree possible, digital-by-default (i.e. providing services and data preferably via digital channels), cross-border-by-default (i.e. accessible for all citizens in the EU) and open-by-default (i.e. enabling reuse, participation/access and transparency);
Increasing the efficiency of electronic interaction within the EAEU;		Provide guidance to public administrations on the design and update of national interoperability frameworks (NIFs), or national policies, strategies and guidelines promoting interoperability;
Improving the efficiency of the integrated system;		Contribute to the establishment of the digital single market by fostering cross-border and cross-sectoral interoperability for the delivery of European public services.

2.7. Components for cross-border recognition from existing cases

Analysis of existing cross-border mutual recognition approaches shows that there are several common components (or attributes) for establishing and operating cross-border mutual recognition scheme. This report narrowed down these common components into nine. They are (1) an international or regional stakeholder which governs the rule or provides principles for cross-border mutual recognition scheme, (2) a legal instrument or a guideline set or agreed upon

by participants, (3) an ownership of recognition requirements, (4) mutual or multilateral implementation bodies implementing such scheme or guideline, (5) the object of recognition, (6) an execution method for recognition, (7) a mechanism to maintain trust among participants, (8) cooperation with the private sector, and (9) technical standards or guidelines.

- An international or regional stakeholder which governs the rule or provides principles for cross-border mutual recognition scheme: In most multilateral recognition scheme, there is a governing body which is responsible for the development of and maintaining recognition scheme. However, their role and responsibility are case sensitive. Some bodies control the details of recognition implementation including execution method and trust mechanism while some bodies merely provide guidelines and principles only for participating members.
- A legal instrument or a guideline set or agreed upon by participants: Most mutual recognition scheme has either an international, regional or bilateral agreement or a guideline set or agreed upon by governing body(ies).
- The ownership (or the owner) of recognition requirements: A stakeholder(s) which has a right to set the mutual recognition criteria and requirements (such as the specific competencies or conformity to security or quality requirements). The owner does not have to be a stakeholder governing cross-border recognition scheme nor an implementing body.
- Mutual or multilateral implementation bodies implementing such scheme or guideline: The stakeholders which implement mutual recognition process and system by the agreement or guideline. Implementation body could be the owner of recognition requirements.
- The object of recognition: A mutual recognition can be achieved through direct or indirect recognition method. For example, notarization is one method of direct recognition on a document. In case of APEC TEL MRA, it is a testing laboratory and certification body not the test result report nor a Certificate. By recognizing the issuing body, the documents are being indirectly recognized in the MRA country(ies).
- An execution method for recognition: The recognition can be made by the different method. A designation and accreditation are the common execution methods.

- A mechanism to maintain trust among participants: Operating and maintaining the trust is more important than initial implementation of mutual recognition. A mechanism to maintain trust among participants is highly depending on a legal instrument that the mutual recognition is based on.
- Cooperation with the private sector: The mutual recognition cases are mostly for the benefits of private sectors. A government can delegate the authority to the private sector through designation or accreditation of such authority.
- Technical standards or guidelines: In some case of mutual recognition scheme provides technical standards and guidelines.

Table 3. Common components for cross-border recognition from existing cases

Cases		AEO MRA	APEC TEL MRA	PAA MRA	EEC MRA	EU MRA
Common components						
Overseer of Mutual Recognition Scheme and Principles		WCO	The APEC Telecommunications and Information Working Group	Steering Committee		
Convention, Agreement and/or Guidelines	Strong		The APEC TEL Mutual Recognition Arrangement for Conformity Assessment of Telecommunications Equipment	Mutual Recognition Agreement		
	Weak	WCO SAFE Framework				

Owner of Mutual Recognition	Participating Customs (mostly bilateral)	The committee of the APEC Telecommunications Mutual Recognition Arrangement Taskforce and participating APEC member economies (bilateral)	PAA Steering Committee		
The Subject(s) of MRM (who is recognizing)	Participating Customs (mostly bilateral)	Member economies' Regulatory Authority (bilateral)	PAA CPA (Certificate Policy Authority) and Certificate Authority		
Geographical coverage of Mutual Recognition	Bilateral	Bilateral	Multilateral		
A target object(s) of Mutual Recognition (what is being recognized)	Mutual Recognition of Authorized Economic Operators	Mutual Recognition of Certification Bodies and Mutual Acceptance of Conformity Certificate and Test Certificate	Mutual Recognition of Certificate Authority and Mutual Acceptance of Digital Certificate (and Digital Signature) and Electronic messages		
Recognition requirements is based on	Bilateral agreement	Importing country's requirements on the object(s)	PAA CPA		
Execution method of Mutual Recognition process	Accreditation	Designation and Accreditation	Accreditation		
Subject of execution of MR process	Participating customs	Participating member economy's regulatory, designating, accrediting and CAB body	PAA members		
Controlling & Monitoring of compliance to Mutual Recognition Agreement/Arrangement	Strong compliance to a bilateral agreement and weak compliance to WCO	Strong compliance to a bilateral agreement and APEC TEL guideline	Strong compliance to Certificate Policy		

	guideline				
Legal background	Bilateral agreements	Bilateral agreements	PAA Club Agreement		
Technical standards	-	Importing country's technical requirements on the object(s)	Proprietary		
Model of mutual recognition.	Public-Private Partnership	Public-Private Partnership	Private		

These nine components are closely related to each other. For example, Ownership can go to an international/regional stakeholder or to implementing body(ies) and legal instrument can dictate the execution method and trust mechanism depending on their influence on others. Mutual recognition scheme can be distinguished by ownership of strong governance or execution method. When international stakeholder set the rules for multilateral mutual recognition, it is a center controlling case while a member state(s) set the rules for bilateral mutual recognition, it is a peer to peer governing case.

Subjects of mutual recognition mechanism are Customs or Member-states that have signed MRAs. Their main task is to recognize AEO programs, conformity certificates, conformity assessment of regulated products or provide confirmation of CAB results. MRM could belong to participating customs, international or regional committees, Public authorities of member-states or international organizations. Execution of MR processes should be done according to strong compliance and usually is provided by various AEOs, Executive committees or international organizations. MRM is legally and technically based on bilateral-multilateral agreements, international conventions and international standards and is financed by the private sector, public authorities or by the Public-private partnership finance schema.

3. CROSS-BORDER MUTUAL RECOGNITION MECHANISM FOR FRAMEWORK AGREEMENT

3.1. General understanding

3.1.1. Objective of MRM for cross-border electronic data and documents exchange

3.1.2. Transboundary trust environment

3.2. Cross-border mutual recognition of electronic data and documents mechanism

3.2.1. Governance and policy ownership

There were different approaches regarding the governance of cross-border mutual recognition cases. In case of mutual recognition of electronic data and documents, the same kinds of governance mechanism can be applied.

- Centralized governance: International or regional body holds the initiative and lead the development of the mutual recognition framework, manages and executes the framework and controls and monitors the compliance of participating member (states). Cases to be added
- Decentralized governance: International or regional body takes initiative and lead the development of the mutual recognition guidelines. And the participating members mutually develop details of mutual recognition method and execute it. Cases to be added
- Hybrid type: to be added
- Others

3.2.2. Target objects to be recognized under the Framework Agreement

From the cases of cross-border mutual recognition of electronic means, different methods of the recognition were identified. The recognition of electronic data and documents can be achieved in different manners. There are several technical approaches available from the cases.

- Electronic data and documents, or electronic signature: Any electronic data and documents (or electronic signature) are developed, circulated and managed conforming to the minimum requirements of a mutual recognition rule or guidelines, regardless of the issuer or recipient, the electronic data and documents (or electronic signature) could be recognized. The key to this approach is how to guarantee the conformance of related stakeholders to the rules.

- Legal person or entity(authority): Recognition of entity which conforms to the minimum requirements or guidelines of the mutual recognition mechanism. The entity could be a body which issues electronic certificates or electronic messages or certifies the electronic messages as an intermediary.
- Trusted environment
- Others?

3.2.3. Execution and monitoring mechanism for guaranteeing the trust

- Designation and Accreditation: Accreditation is the independent evaluation of intermediary bodies against recognized standards and requirements to ensure their impartiality and competence. Either public bodies or private bodies can be an accredited body that can be recognized by the mutual recognition scheme. Designation of trusted body method to execute and manage the mutual recognition scheme can be found together with Accreditation in the previous study cases. The main purpose of designation is to authorize a body which controls or audits the related accredited bodies.
 - Self assessment
 - Compliance
 - Others
-